

REMARKS

Reconsideration of the application is requested in view of the above amendments and the following remarks. Claims 6-9 and 14-22 are canceled without prejudice or disclaimer. New claims 23-29 have been added. New claims 23-28 are supported by at least original claims 1-4 and the description at page 2, fourth paragraph and page 3, third to the last paragraph of the original application. New claim 29 is supported by original claim 5. No new matter has been added.

Election/Restriction:

Claims 19-22 were deemed directed to an invention that is independent or distinct from the invention originally claimed. Claims 19-22 have been canceled without prejudice or disclaimer, rendering this election/restriction moot.

§ 112 Rejections:

Claims 6-9 and 14-18 were rejected under 35 U.S.C. § 112, 1st paragraph, as failure to comply with the written description requirement. As noted above, claims 6-9 and 14-18 have been canceled without prejudice or disclaimer, rendering this rejection moot. Applicants do not concede the correctness of this rejection.

New Claims:

New claims 23-29 have been added. Claim 1 is directed to a device for producing plastic pipes that includes a vacuum suction bell having a vacuum suction connection, wherein pre-cooling of the molten extrusion takes place in the vacuum suction bell. Claim 23 also includes measuring devices that control the outside diameter of the molten extrusion by setting the vacuum prevailing in the vacuum suction bell.

Claim 29 is directed to a device for producing plastic pipes that includes a pipe head, a vacuum suction bell that defines a vacuum-tight chamber with a vacuum connection, measuring instruments, a calibrating station, a calibrating bath, and a vacuum seal.

Applicant submits that the prior art of record fails to disclose or suggest every limitation of new claims 23-29. Consideration and allowance of new claims 23-29 is earnestly requested.

The following three references have been applied during prosecution of the present application: US 4,140,460 (Carlsen), GB 2182603 (GB '603), and US 4,355,966 (Sweeney). Applicant submits that the device disclosed by Carlsen is not analogous art to at least the GB '603 reference and the present application. Carlsen discloses a process for blowing tubes, whereas the claimed invention is directed to extrusion of rigid pipes using a process very different from blowing tubes. The process of blowing tubes is a blow molding process wherein a tube is blown up like a balloon by pumping air under pressure into the interior of the tube. Carlsen discloses a process for blowing tubes that includes a first blower 12 that blows gas into the interior of a tube 11 and a second exhaust blower 14 that removes gas from the interior of the tube to control the pressure force inside the tube. Sensors 21 disclosed by Carlsen are used to measure the outer diameter of the blown up tube and then produce signals that are sent to the controller 22, which in turn actuates the motor 20 that adjusts dampers 16, 17 in the supply duct 13 and the exhaust duct 15, respectively. Adjusting the dampers controls the pressure (overpressure, rather than vacuum pressure) within the interior of the tube 11. Carlsen further discloses cooling of the tube using the cooling gas applied by the blower 12, which is applied under pressure into the interior of the tube 11.

Applicant attaches herewith, as noted on a courtesy copy of PTO Form 1449, excerpts from Wittfoht's *Plastics Technical Dictionary* (pages 6, 169 and 304). These dictionary excerpts further define the processes for producing rigid plastic pipes versus processes for blow molding plastic. In essence, the process of producing rigid plastic pipes includes pressing a molten material through a tool that gives a ring shape, such that the diameter and the wall thickness are defined by the tool rather than an overpressure within the interior of the blown up pipe as is required by a blow molding process. A pipe that leaves the tool of the extruder is generally already in a desired diameter and wall thickness while maintaining a molten or semi-molten state, and the pipe is then calibrated and cooled down. Thus, there are some distinct differences between the process disclosed by Carlsen and the claimed process.

The GB '603 reference, although more closely related to the claimed invention, also fails to disclose or suggest every limitation of new claims 23-29. GB '603 discloses a process in which soft pipe passes through a sizing sleeve 5 (see Figure 1) and then enters a perforated sleeve 6 in a vacuum spray tank 8 where the expanded dimensions of the pipe are retained while the pipe is cooled (see page 1, lines 120-126). The vacuum-tight chamber 29 shown in Figure 2 of GB '603 is not properly comparable to the vacuum suction bell of new claims 23-29 because, as can be seen in Figure 2 of GB '603, the pipe 22 and the vacuum chamber 29 has not yet reached its final diameter. The "bubble" 22 passes through a sizing sleeve 19 and then enters into the vacuum tank 20 (comparable to the vacuum spray tank shown in Figure 1 of GB '603). The wall of the sleeve 6 in Figure 1 is perforated in order to suck up the pipe at an outer circumference of the pipe. The purpose of this is to create a radial outer force on the outside surface of the pipe. Although this vacuum-tight force has no relation whatsoever to the overpressure condition disclosed by Carlsen.

Further, referring to the description at page 1, line 20 and Figure 1 of GB '603, the bubble 7 passes through the sizing sleeve 5 and then enters the perforated sleeve 6 where the dimensions of the pipe are expanded. This means that the external diameter of the pipe increases from D1 (internal diameter of the die body 2) to D2 (internal diameter of the sizing sleeve 5), which is the final diameter of the pipe. The change from D1 to D2 and related changes in the wall thickness are not the final change in these dimensions. Additional changes may occur to these dimensions while the pipe is in the vacuum suction chamber 6, where the pipe is made to have its final dimension. It is only possible to change the shape of the bubble 7 by varying the axial distance between the die and the vacuum spray tank 8 and the perforated sleeve 6.

Still further, in the embodiment of Figure 2 of GB '603, there is an additional vacuum chamber 29 in the space between the die 11 and the sizing sleeve 19. An adjustment can take place in this additional vacuum chamber 29 in order to influence the bubble diameter while it is expanding between D1 and D2. This additional vacuum chamber is a further distinction from the process Carlson and the limitation of new claims 23-29.

Concerning the Sweeney reference, Sweeney discloses a process of making a blown film, wherein a tube is blown up by providing air under pressure into the interior of the tube. As a

result, an endless tube is formed which is pulled up between nip rolls 18, which are mounted at the top of the cooling tower. See column 2, the last two paragraphs, column 3, first paragraph, in Figure 1 of Sweeney. Sweeney fails to disclose a process of producing a rigid pipe as is required by claims 23-29. Sweeney discloses a process for generating a tube that is blown up to form a bag comprising very thin flexible plastic material that is flattened when passing through rolls 18 so as to leave the process as a flat material. Afterwards, this flat material is cut to the desired bag size. Although Sweeney discloses three light sources 162, 164, 166 (see Figure 3 of Sweeney), the purpose of these light sources is merely to provide a signal if the bubble is oversized or undersized. The light sources are associated with the lined sensors 186, 184. The sensors 186, 184 produce an electric signal that actuates on a valve 202 that vents the air from the dye so that the overpressure inside the bubble is reduced and the diameter of the bubble is also reduced. Thus, Sweeney also fails to disclose the process of the claimed invention and is directed to a process very different from GB '603.

In view of the above, Applicant submits that both Carlsen and Sweeney disclose processes that are non-analogous to both GB '603 and the claimed invention. Thus, one skilled in the art would not be motivated to review those references or combine those references with GB '603 to render obvious the limitations of new claims 23-29.


In view of the above, Applicant requests reconsideration of the application in the form of a Notice of Allowance.

Respectfully submitted,

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